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PTO/SB/21 (09-06)

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TRANSMITTAL FORM (to be used for all correspondence after initial filing)	Application Number	10/590,045 ✓	
	Filing Date	February 18, 2005	
	First Named Inventor	Yasuo SUDA	
	Art Unit	Not Yet Assigned	
	Examiner Name	Not Yet Assigned	
Total Number of Pages in This Submission	6 + 24 Refs.	Attorney Docket Number	247322003800

ENCLOSURES (Check all that apply)

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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	MORRISON & FOERSTER LLP (Customer No. 20872)		
Signature	<i>Michael R. Ward</i>		
Printed name	Michael R. Ward		
Date	March 16, 2007	Reg. No.	38,651

I hereby certify that this paper is being deposited with the U.S. Postal Service as Express Mail, Airbill No. EM 054 076 299 US, on the date shown below in an envelope addressed to:

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Dated: March 16, 2007

Signature

Ariana Sanchez

(Ariana Sanchez)

Patent

Docket No. 247322003800

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Yasuo SUDA

Serial No.: 10/590,045

Filing Date: February 18, 2005

For: CAROHYDRATE-LIGAND
CONJUGATES AND THEIR
APPLICATION FOR THE ANALYSIS
OF CARBOHYDRATE-PROTEIN
INTERACTION

Examiner: Not Yet Assigned

Group Art Unit: Not Yet Assigned

**INFORMATION DISCLOSURE
STATEMENT UNDER 37 C.F.R. § 1.97 & 1.98**

MS Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Pursuant to 37 C.F.R. §1.97 and § 1.98, Applicants submit for consideration in the above-identified application the documents listed on the attached Form PTO/SB/08a/b. Copies of foreign documents and non-patent literature are submitted herewith. The Examiner is requested to make these documents of record.

This Information Disclosure Statement is submitted:

- ☐ With the application; accordingly, no fee or separate requirements are required.
- ☐ Before the mailing of a first Office Action after the filing of a Request for Continued Examination under § 1.114. However, if applicable, a certification under 37 C.F.R. § 1.97 (e)(1) has been provided.
- ☒ **Within three months of the application filing date or before mailing of a first Office Action on the merits; accordingly, no fee or separate requirements are required. However, if applicable, a certification under 37 C.F.R. § 1.97 (e)(1) has been provided.**
- ☐ After receipt of a first Office Action on the merits but before mailing of a final Office Action or Notice of Allowance.
 - ☐ A fee is required. A check in the amount of ___ is enclosed.
 - ☐ A fee is required. Accordingly, a Fee Transmittal form (PTO/SB/17) is attached to this submission in duplicate.
 - ☐ A Certification under 37 C.F.R. § 1.97(e) is provided above; accordingly, no fee is believed to be due.
- ☐ After mailing of a final Office Action or Notice of Allowance, but before payment of the issue fee.
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 - ☐ A Certification under 37 C.F.R. § 1.97(e) is provided above and a Fee Transmittal form (PTO/SB/17 is attached to this submission in duplicate.)

Applicants would appreciate the Examiner initialing and returning the Form PTO/SB/08a/b, indicating that the information has been considered and made of record herein.

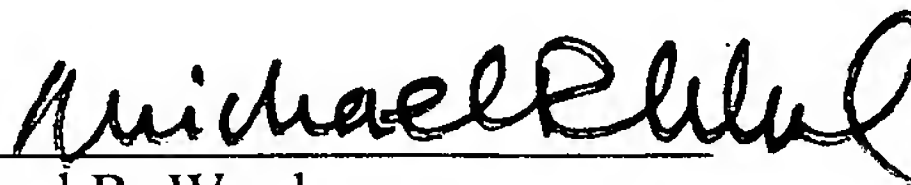
The information contained in this Information Disclosure Statement under 37 C.F.R. § 1.97 and § 1.98 is not to be construed as a representation that: (i) a complete search has been made; (ii) additional information material to the examination of this application does not exist;

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In the unlikely event that the transmittal form is separated from this document and the Patent and Trademark Office determines that an extension and/or other relief (such as payment of a fee under 37 C.F.R. § 1.17 (p)) is required, Applicants petition for any required relief including extensions of time and authorize the Commissioner to charge the cost of such petition and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing 247322003800.

Dated: March 16, 2007

Respectfully submitted,

By 

Michael R. Ward

Registration No.: 38,651

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ALTERNATIVE TO PTO/SB/08A/B (09/06)

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)				Complete if Known	
				Application Number	10/590,045
				Filing Date	February 18, 2005
				First Named Inventor	Yasuo SUDA
				Art Unit	Not Yet Assigned
				Examiner Name	Not Yet Assigned
Sheet	1	of	2	Attorney Docket Number	247322003800

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number Number-Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1.	US-5,955,729	09-21-1999	Nelson et al.	
	2.	US-20060030699-A1	02-09-2006	Suda et al.	

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. ¹	Foreign Patent Document Country Code ³ -Number ⁴ -Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶
	3.	WO-9709608	03-13-1997	Pharmacia Biosensor AB		
	4.	JP-2002080488	03-19-2002	University of Osaka		
	5.	JP-2003083969	03-19-2003	Japan Science & Technology Corp.		
	6.	JP-2004157108	06-03-2004	Japan Science & Technology Corp. and Univ. Kagoshima		

*EXAMINER: Initial if information considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

NON PATENT LITERATURE DOCUMENTS				
Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.		T ²
	7.	Arano, Akio et al. "Analysis of Binding Interaction Between Glycosaminoglycans and Proteins Using Surface Plasmon Resonance," Annual Meeting Syllabus of the Japanese Society of Carbohydrate Research, volume 22, 4 pages.		
	8.	Liedberg, B. et al. (1995). "Biosensing with surface plasmon resonance-how it all started," Biosensors & Bioelectronics 10:i-ix.		
	9.	Plant, A.L. et al. (1995). "Phospholipid/Alkanethiol Bilayers for Cell-Surface Receptor Studies by Surface Plasmon Resonance," Analytical Biochemistry, 226:342-348.		
	10.	Horan, N. et al. (1999). "Nonstatistical binding of a protein to clustered carbohydrates," PNAS, 96(21):11782-11786.		
	11.	Arano, Akio et al. (2001). "Synthesis of a conjugate having heparin partial structure and a distal disulfide group and its application to chip technology," Chemical Society of Japan, Tentative Lecture Proceedings II in the 79th Spring Meeting, March 15, 2001, 3 pages (4G305).		
	12.	Kideki et al. (2001). "Assembly of saccharide by multi-functional linker and application to surface plasmon resonance analysis and affinity chromatography," Tentative Lecture Proceedings, Chemical Society of Japan, volume 83, 3 pages.		
	13.	Arano, Akio et al. (2002) "Preparation of novel clustered oligosaccharide-ligand containing multi-units of heparin partial structure and its application for chip technology," The Chemical Society of Japan, the 82nd Fall Meeting, September 10, 2002, 3 pages.		
	14.	Fazio, F. et al. (2002). "Synthesis of Sugar Arrays in Microtiter Plate," J. Am. Chem. Soc., 124:14397-14402.		
	15.	Fukui, S. et al. (2002). "Oligosaccharide microarrays for high-throughput detection and		

Examiner Signature		Date Considered	
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sf-2284307

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				Complete if Known	
				Application Number	10/590,045
				Filing Date	February 18, 2005
				First Named Inventor	Yasuo SUDA
				Art Unit	Not Yet Assigned
				Examiner Name	Not Yet Assigned
Sheet	2	of	2	Attorney Docket Number	247322003800

		specificity assignments of carbohydrate-protein interactions," Nature Biotechnology, 20:1011-1017.	
	16.	Houseman, B. et al. (2002). "Carbohydrate Arrays for the Evaluation of Protein Binding and Enzymatic Modification," Chemistry & Biology, 9:443-454.	
	17.	Wang, D. et al. (2002). "Carbohydrate microarrays for the recognition of cross-reactive molecular markers of microbes and host cells," Nature Biotechnology, 20:275-281.	
	18.	Arano, Akio et al. (2003) "Preparation of Sugar Chips Immobilized with Clustered Sulfated Oligosaccharides and their Application of Surface Plasmon Resonance," The Japanese Society of Carbohydrate Research, volume 24, 7 pages.	
	19.	Hayashi et al. (2003). "Synthesis, designed assembly and biotinylation of sulfated oligosaccharide and its application to surface plasmon resonance," Tentative Lecture Proceedings, Chemical Society of Japan, 3 pages.	
	20.	Suda, Yasuo et al. (2003). "Development of Analytical System for the Function of Oligosaccharides at Nanometer Scale," Annual Meeting Syllabus of the Japanese Society of Carbohydrate Research, volume 24, 7 pages.	
	21.	Feizi, T. et al. (2004). "Oligosaccharide microarrays to decipher the glycol code," Nature, 5:582-588.	
	22.	Kato, M. et al. (2004). "Using Model Substrates To Study the Dependence of Focal Adhesion Formation on the Affinity of Integrin-Ligand Complexes," Biochemistry, 43:2699-2707.	
	23.	Ratner, D.M. et al. (2004). "Probing Protein-Carbohydrate Interactions with Microarrays of Synthetic Oligosaccharides," ChemBioChem, 5:379-383.	
	24.	Suda, Yasuo (2004). "Sugar Chip: Novel Bio Device for Finding Out Biofunction of Oligosaccharides," Polymer Preprints, Japan, volume 52, 11 pages.	
	25.	Park, S. et al. (2004). "Carbohydrate Chips for Studying High-Throughput Carbohydrate-Protein Interactions," J. Am. Chem. Soc., 126:4812-4819.	
	26.	Karamanska, R. et al. (2005). "Thioctic acid amides: convenient tethers for achieving low nonspecific protein binding to carbohydrates presented on gold surfaces," Chem. Commun., pp. 3334-3336.	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Applicant's unique citation designation number (optional). ²Applicant is to place a check mark here if English language Translation is attached.

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